UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,921	11/13/2003	Hiroko Watanabe	056207.52917US	7306

23911 7590 03/23/2005

CROWELL & MORING LLP
INTELLECTUAL PROPERTY GROUP
P.O. BOX 14300
WASHINGTON, DC 20044-4300

EXAMINER	
TRAN, BINH Q	
ART UNIT	**PAPER NUMBER**
3748	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/705,921	WATANABE ET AL. ED
	Examiner	Art Unit
	BINH Q. TRAN	3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/13/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Receipt and entry of Applicant's Preliminary Amendment dated November 13, 2003 is acknowledged.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. More specifically,

- In claim 4, line 4, the use of alternative expression ***"or "*** renders the claims indefinite because the expressions on either side of the ***"or"*** are not considered equivalent and cause uncertainty with respect to the scope of the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claims 1-5, and 7-13 are rejected under 35 U.S.C. 102 (b) as being anticipated by Murachi et al. (Murachi) (Patent Number 5,746,989).

Regarding claims 1, and 11-12, Murachi discloses a exhaust gas purification apparatus for purifying exhaust gas exhausted from a diesel internal combustion engine (1) and containing therein harmful substances including particulates, NOx, HC and CO, at least, said exhaust gas purification apparatus comprising: a removal part (7) for trapping and removing particulates in the exhaust gas; a purification part (e.g. 5, 9, 10) for purifying NOx, HC and CO through contact; and a heat transfer part (5a) for transferring heat generated in said removal part to said purification part (e.g. See col. 3, lines 43-67; col. 4, lines 1-64; col. 7, lines 26-67; col. 8, lines 21).

Regarding claims 2 and 13, Murachi further discloses that the heat transfer part for transferring heat generated in said removal part is based on conduction, retention or radiation of the heat (e.g. See col. 4, lines 15-28; col. 7, lines 26-67).

Regarding claim 3, Murachi further discloses that the removal part for trapping and removing particulates in the exhaust gas employs a filter composed of porous material or metal material (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Regarding claim 4, Murachi further discloses that the purification part for purifying NOx, HC, CO through contact is a three-way catalyst, firing combustion catalyst, lean NOx catalyst purifying NOx in lean exhaust gas, HC adsorption catalyst, or electric catalyst (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Regarding claim 5, Murachi further discloses that the heat transfer part (5a) for transferring heat generated in said removal part conducts (heat transfer) through a good heat conductor (e.g. See col. 4, lines 15-28; col. 7, lines 26-67).

Regarding claim 7, Murachi further discloses that the heat transfer part for transferring heat generated in said removal part uses heat accumulating material (e.g. See col. 4, lines 15-28; col. 7, lines 26-67).

Regarding claim 8, Murachi further discloses that the removal part for trapping and removing particulates in the exhaust gas and said purification part for purifying NOx, HC and CO through contact are constructed as an integrated structure in which metal material is used as a substrate (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Regarding claim 9, Murachi further discloses that the exhaust gas purification apparatus is arranged so that said purification part is arranged at an upstream side of said exhaust gas purification apparatus and said removal part is arranged at a downstream side thereof (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Regarding claim 10, Murachi further discloses that wherein in order to transfer the heat generated in said removal part for removing particulates to said purification part at the upstream side, exhaust gas including combustion heat of particulates is transferred to said purification part at the upstream side (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Claims 1-13 are rejected under 35 U.S.C. 102 (b) as being anticipated by Clerc et al. (Clerc) (Patent Number 5,052,178).

Regarding claims 1, and 11-12, Clerc discloses a exhaust gas purification apparatus for purifying exhaust gas exhausted from a diesel internal combustion engine (Figs. 1-2) and

containing therein harmful substances including particulates, NOx, HC and CO, at least, said exhaust gas purification apparatus comprising: a removal part (14) for trapping and removing particulates in the exhaust gas; a purification part (16) for purifying NOx, HC and CO through contact; and a heat transfer part (18) for transferring heat generated in said removal part to said purification part (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claims 2 and 13, Clerc further discloses that the heat transfer part for transferring heat generated in said removal part is based on conduction, retention or radiation of the heat (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 3, Clerc further discloses that the removal part for trapping and removing particulates in the exhaust gas employs a filter composed of porous material or metal material (e.g. See col. 3, lines 43-67; col. 4, lines 1-64).

Regarding claim 4, Clerc further discloses that the purification part for purifying NOx, HC, CO through contact is a three-way catalyst, firing combustion catalyst, lean NOx catalyst purifying NOx in lean exhaust gas, HC adsorption catalyst, or electric catalyst (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 5, Clerc further discloses that the heat transfer part (5a) for transferring heat generated in said removal part conducts (heat transfer) through a good heat conductor (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 6, Clerc further discloses that the removal part for trapping and removing particulates in the exhaust gas and said purification part for purifying NOx, HC and CO through contact are provided in a container (2) made of material including good heat conductor, without intervening any heat insulator between an inner wall surface of said container and an outer wall

surface of said container, and the heat generated in said removal part is transferred to said purification part (e.g. See Figs. 1-2; col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 7, Clerc further discloses that the heat transfer part for transferring heat generated in said removal part uses heat accumulating material (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 8, Clerc further discloses that the removal part for trapping and removing particulates in the exhaust gas and said purification part for purifying NOx, HC and CO through contact are constructed as an integrated structure in which metal material is used as a substrate (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 9, Clerc further discloses that the exhaust gas purification apparatus is arranged so that said purification part is arranged at an upstream side of said exhaust gas purification apparatus and said removal part is arranged at a downstream side thereof (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Regarding claim 10, Clerc further discloses that wherein in order to transfer the heat generated in said removal part for removing particulates to said purification part at the upstream side, exhaust gas including combustion heat of particulates is transferred to said purification part at the upstream side (e.g. See col. 3, lines 40-67; col. 4, lines 1-48).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents:

Fukuda et al. (Pat. No. 5822977), Takeshima et al. (Pat. No. 5388406), Kammel (Pat. No. 5121601), Hirota et al. (Pat. No. 5974791), and Kinugasa et al. (Pat. No. 6032461) all discloses an exhaust gas purification for use with an internal combustion engine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Binh Tran whose telephone number is (571) 272-4865. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion, can be reach on (571) 272-4859. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BT
March 18, 2005

Binh Q. Tran
Patent Examiner
Art Unit 3748